

VISIT...

LANZAROTE
Caliente.COM



Volume 9

Issue 2 2005: *Symposium - Disentangling Fact From
Fiction: The Realities of Unequal Health Care
Treatment*

Article 6

Race to Health: Racialized Discourses in a Transhuman World

Lisa C. Ikemoto

Follow this and additional works at: <http://via.library.depaul.edu/jhcl>

Recommended Citation

Lisa C. Ikemoto, *Race to Health: Racialized Discourses in a Transhuman World*, 9 DePaul J. Health Care L. 1101 (2005)
Available at: <http://via.library.depaul.edu/jhcl/vol9/iss2/6>

This Article is brought to you for free and open access by Via Sapientiae. It has been accepted for inclusion in DePaul Journal of Health Care Law by an authorized administrator of Via Sapientiae. For more information, please contact mbernal2@depaul.edu, MHESS8@depaul.edu.

RACE TO HEALTH: RACIALIZED DISCOURSES IN A TRANSHUMAN WORLD

*Lisa C. Ikemoto**

I. INTRODUCTION

We are at an interesting moment in biomedicine. After a long absence as a legitimate subject of scientific inquiry, race is back. Science had long been used to support institutionalized racial hierarchy in the U.S. and Europe. Notions of biological race or inherent race-based biological differences have been used to justify war, slavery, harmful effects of industrialization, segregation, immigration restrictions, eugenics, and population control. It took the Nazis to discredit biological race in the U.S.¹ After World War II, biomedical science backed off of race. Race, instead, became the subject of social science.² Social scientists helped us understand that race is formed as a result of a sociopolitical process – racialization.³ Civil rights activists helped us realize race as a political identity that can become a platform for organizing against racial subjugation.⁴

But race is back on the biomedical research agenda. As a result, biological race is emerging as a legitimized explanation for medical and social issues.⁵ In the context of health care, the use of race as a diagnostic tool, as a pharmaceutical-marketing tool, and as a basis for identifying and tracking health disparities may seem benign. But two

* Professor of Law, Loyola Law School, Visiting Professor, U.C. Davis School of Law (2004-2006). I would like to thank research assistants Susie Yoon and Ellie Gladstone for their diligent work. I gratefully acknowledge the summer research fellowship from Loyola Law School, and the funding for research assistants provided by U.C. Davis School of Law. Most of all, I thank Scott and Kazu for their love and patience.

¹ ELAZAR BARKAN, *THE RETREAT OF SCIENTIFIC RACISM: CHANGING CONCEPTS OF RACE IN BRITAIN AND THE UNITED STATES BETWEEN THE WORLD WARS* 1 (1992), TROY DUSTER, *BACKDOOR TO EUGENICS* 4 (2d ed. 2003).

² BARKAN, *supra* note 1, at 342; WILLIAM H. TUCKER, *THE SCIENCE AND POLITICS OF RACIAL RESEARCH* 138 (1994).

³ See MICHAEL OMI & HOWARD WINANT, *RACIAL FORMATION IN THE UNITED STATES FROM THE 1960S TO THE 1990S* (2d ed. 1994).

⁴ See HOWARD WINANT, *THE WORLD IS A GHETTO: RACE AND DEMOCRACY SINCE WORLD WAR II* 158-64 (2001).

⁵ JOSEPH L. GRAVES, JR., *THE EMPEROR'S NEW CLOTHES, BIOLOGICAL THEORIES OF RACE AT THE MILLENNIUM* 156 (2001), HOWARD WINANT, *THE WORLD IS A GHETTO* 151 (2001).

things should give us pause. Historically, biological race has only been used to justify subordination and segregation. It has served no benign purpose. In addition, the emerging explanatory power of biological race follows closely in time the resurrection of eugenics as a medical and social practice.⁶

Against this background, a debate about the desirability of transhumanism - the use of biotechnology to enhance human mental and physical capacities - has formed. Proponents of transhumanism point to the hope that science could substantially prolong human life, make us smarter, and free of genetic defects. Others worry that new technologies will also be used to for social control, for eugenic purposes, or that in the process of enhancing ourselves, humans will lose the experiential or other basis that makes us "human." Proponents and opponents have alternately framed transhumanism as the next frontier and a no-human's land. The debate, in part, reflects hopes and fears about the role of science in society, differences in ways of defining progress and the boundaries of humanness, and varying degrees of faith in our governing institutions.

Not surprisingly, the debate is framed in nearly exclusively modernist terms. Perhaps just as unsurprising is that while participants in the debate address the possibility that enhancement technology use could create inequalities between the enhanced and the not-enhanced, the debate barely addresses the possibility that a transhumanist world may be a racist world. Nor does the debate consider the role that biological race may play in this world.

If there is anything we have learned about the power of racialization is that it is far-reaching. As ahistorical as transhumanism may seem, novel uses of biotechnology and their potential to reformulate our understandings of humanity and human will not necessarily and finally disrupt the power of racialization. Nor will the apparent race-neutrality of the transhumanist debate make the future so. Enhancement technology use is already intertwined with racial ideology, including the notion of biological race.

The formation of biomedical knowledge takes place in a socio-political context that shapes its content. In other words, science is an interpretive process and therefore, a product of cultural, social and political forces.⁷ Biology, and genetics in particular, are often, and in

⁶ TROY DUSTER, *BACKDOOR TO EUGENICS* 4-5 (2d ed. 2003).

⁷ See SANDRA HARDING, *THE SCIENCE QUESTION IN FEMINISM* (1986); EVELYN FOX KELLER, *REFLECTIONS ON GENDER AND SCIENCE* (1984), EVELYN FOX KELLER, *REFIGURING LIFE: METAPHORS OF TWENTIETH CENTURY BIOLOGY* (1995). See also

discourse, always, ideological.⁸ These interrelated points do not contradict the results of science. Instead, they “challenge the notion that science and its discoveries are exempt from ideology critique, deconstruction, or historical investigation that might be trained on any other discourse: literature and art, politics, social scientific theory, and so forth.”⁹

The purpose of this essay is to expose the racialized content of the mainstream debate about transhumanism, and to suggest that we may be able to use transhumanism’s challenges to modernist ideological structures to counter enhancement technologies worst possible uses. In Part II, I sketch the re-emergence of biological race, and concerns it has raised about genetic essentialism and eugenics. In Part III, I use literary and popular culture texts and a few of the most influential participants in the transhumanist debate to illustrate how the issues of enhancement technology use are being framed and addressed. I point out that race and racism are curiously absent in the debate, especially given the vigor of the discourse over biological race. In addition, I show how the debate frames the issues and solutions in wholly modernist terms. I, then, address the irony of addressing the possibilities of posthumanism in modernist terms, and argue that transhumanism, when viewed through a postmodern lens, may be used to challenge modernist social constructions that maintain inequality. In Part IV, I forecast a future for transhumanism made predictable by current racist practices. I then suggest that progressives may be undermined by their own reflexive oppositionality and use of essentialized notions of identity and community. I argue that postmodernism can make itself relevant in the transhumanist debate by rejecting an anti-science, anti-technology stance, and instead participating in the formation of scientific knowledge and technology use by building what sociologist Stanley Aronowitz has called “a new

CHARLES ALAN TAYLOR, *DEFINING SCIENCE: A RHETORIC OF DEMARCATION* (1996); DOROTHY NELKIN & M. SUSAN LINDEE, *THE DNA MYSTIQUE: THE GENE AS CULTURAL ICON* (1995);

⁸ See generally R.C. LEWONTIN, *BIOLOGY AS IDEOLOGY: THE DOCTRINE OF DNA* (1991); R.C. LEWONTIN, STEVEN ROSE & LEON J. KAMIN, *NOT IN OUR GENES: BIOLOGY, IDEOLOGY, AND HUMAN NATURE* (1984); DOROTHY NELKIN & M. SUSAN LINDEE, *THE DNA MYSTIQUE: THE GENE AS A CULTURAL ICON* 5-11(1995). See also Andrew Ross, *Introduction*, in *SCIENCE WARS* 1-5(Andrew Ross ed. 1996); Sarah Kember, *Reinventing Cyberfeminism: Cyberfeminism and the New Biology*, 31 *ECONOMY & SOCIETY* 626, 628 (2002).

⁹ Stanley Aronowitz, *Politics of the Science Wars*, in *SCIENCE WARS*, *supra* note 8, at 202, 205-06.

scientific citizenship,” that uses political organizing as a primary strategy.

II. THE RETURN TO RACE

Biological race, as well as the standard anti-racist responses to it, have returned to biomedical research. In the past, researchers have compared observed differences in skin color, skeletal structure, tactile sensitivity, genital size, disease susceptibility, mental defectiveness, hair follicle structure, mortality rates, and other “evidence” to support claims of inherent racial superiority/inferiority.¹⁰ Today, it all rides upon the gene. And both those who claim and those who refute the truth and efficacy of biological race use genetic knowledge as their evidence.

The gene has become the unified theory of the moment. Biomedical science casts the gene as the code, the blueprint, the bible of life.¹¹ Researchers are pursuing the genetic bases for diseases and disabilities, for indicators of health and ability such as longevity and fertility, and most disturbingly -- given our eugenic past, behavior.¹² Outside of science, the explanatory power of the gene may be even more expansive. In popular culture -- movies, entertainment television, news media, literature -- the romance and horror of the gene have become staples. The degree to which the gene has perfused our consciousness is suggested by the recent publication of non-science fiction literature in which genetic cloning technology provides context, not subject matter.¹³

The appeal of a single, direct causative agent for life and its variations is vast.¹⁴ The appeal is so strong that we often reject, in its

¹⁰ WILLIAM H. TUCKER, *THE SCIENCE AND POLITICS OF RACIAL RESEARCH* 9-33 (1994).

¹¹ See DOROTHY NELKIN & M. SUSAN LINDEE, *THE DNA MYSTIQUE: THE GENE AS CULTURAL ICON* 6-8 (1995) (discussing the range of metaphors used and the power they attribute to DNA).

¹² See, e.g., TROY DUSTER, *BACKDOOR TO EUGENICS* 98-103 (2d ed. 2003) (describing as problematic research to locate a genetic basis for criminal behavior). A recently published study examined the correlation between genetics, social orientation, and political beliefs. See Benedict Carey, *Some Politics May Be Etched in the Genes*, N.Y. TIMES, June 21, 2005, at D1.

¹³ See, e.g., KAZUO ISHIGURO, *NEVER LET ME GO* (2005).

¹⁴ See R.C. LEWONTIN, *BIOLOGY AS IDEOLOGY: THE DOCTRINE OF DNA* 41- 42 (describing and critiquing the assumption in biology that “one looks for *the* cause of an effect, or even if there are a number of causes allowed, one supposes that there is a major cause and the others are only subsidiary. And in any case, these causes are

favor, attempts to add refinement, detail, nuance, and complexity to the theory. We cling, instead, to the reductionist version of genetics. It is, after all, not only easier to understand, but also offers predictability, certainty, and absolution from responsibility. The discoveries of genetic science neither fully support nor significantly undermine the power of the gene. DNA has taken on a life of its own in the public imaginary. It feeds off of but does not depend on scientific validation.

One of the major proclamations issued from the Human Genome Project was that each of us is a 99.9% genetic match with the other, and that the genetic variation among the recognized racial populations is smaller than that between any two individuals.¹⁵ It would appear, therefore, that race-based genetic differences are insignificant. The issue then becomes, what do we make of this information? Geneticists and other researchers have contested the issue.¹⁶ Some would ban the use of race in research.¹⁷ Others find race useful. Or, more specifically, they claim that there is a sufficient correlation between popular continent-based concepts of race and

separated from each other, studied independently, and manipulated and interfered with in an independent way." (emphasis in original)).

¹⁵ Lynn B. Jorde & Stephen P. Wooding, *Genetic Variation, Classification and "Race,"* 36 NATURE GENETICS S28 (2004); Mark Henderson, *Gene Tests Prove That We Are All the Same Under the Skin*, N.Y. TIMES, Oct. 27, 2004, Home News, at 16. ("The human genome map has shown that if two people of any ethnic origin are selected at random, only between 1 in 1,000 and 1 in 1,500 of their genes will differ. This makes our species among the most homogeneous known to science: populations of chimpanzees and fruit flies differ much more from one another in genetic terms. A typical Caucasian's genes will be as similar -and as different - to those of another Caucasian as they will be to a black African or a Chinese person. About 90 per cent of genetic variation occurs within ethnic groups, rather than between them. Two Africans, though both superficially "black", will differ more from one another than from other races. This reflects the course of evolution.").

¹⁶ See, e.g., *Genetics for the Human Race*, 36 NATURE GENETICS S1 (2004) (this entire issue of Nature Genetics was dedicated to the issue of whether there is a genetic basis for race and whether using racial categories was a useful and desirable way of pursuing genetic bases for disease). Geneticists and other scholars presented a wide range of views on the issues.) See *id.* See also *Special Issue: Genes, Race, and Psychology in the Genome Era*, 60 AM. PSYCHOLOGIST 1 (2005) (a special issue of American Psychologist, in which researchers discuss racial health disparities and the controversial area of intelligence and also delimit the ways in which race should and should not be used).

¹⁷ See Sharona Hoffman, *Is There a Place for "Race" as a Legal Concept?*, 36 ARIZONA STATE L.J. 1093 (2004).

genetic variation to justify using race as a proxy.¹⁸ Some would use race, but with caution.¹⁹ Others would shift the focus to genetic variation itself,²⁰ or to the role of environmental factors and the effects of racism on social and economic structures.²¹

What seems to be at stake is identity. The extreme version of the unified theory posits the gene as the essence of identity. This conclusion rests on a reductive precept. Genetic essentialism characterizes the person or population first and foremost in terms of genetic content, or perhaps more accurately, selected genetic content.²² In a broad sense, genetic essentialism operates like racial stereotyping. It takes a fixed physical trait and interpolates socially constructed meaning to the exclusion of self and agency. Merging genetic essentialism with the use of race as a proxy for genetic variation is producing a form of biological race made particularly strong by its association with genetics.²³ The resulting reproduction of biological race would reinforce preexisting notions of racial difference. It might even generate new stereotypes. At the least, it would reduce the possibility of using the finding of 99.9% genetic overlap to understand ourselves as more interconnected than different.

¹⁸ See, e.g., Joanna L. Mountain & Neil Risch, *Assessing Genetic Contributions to Phenotypic Differences Among "Racial" and "Ethnic" Groups*, 36 NATURE GENETICS 48 (2004).

¹⁹ See, e.g., Sarah K. Tate & David B. Goldstein, *Will Tomorrow's Medicines Work for Everyone?*, 36 NATURE GENETICS 34 (2004). See also Marshall H. Chin & Catherine A. Huminowski, *When is Risk Stratification by Race or Ethnicity Justified in Medical Care?*, 77 ACAD. MED. 202 (2002). See generally Erik Liliquist, *The Law and Genetics of Racial Profiling in Medicine*, 39 HARV. C.R.-C.L. L. REV. 391 (2004).

²⁰ See, e.g., Lynn B. Jorde & Stephen P. Wooding, *Genetic Variation, Classification and "Race"*, 36 NATURE GENETICS 28 (2004).

²¹ See, e.g., Richard Cooper & Richard David, *The Biological Concept of Race and its Application to Public Health and Epidemiology*, 11 J. HEALTH POLITICS, POL'Y & L. 97, 106 (1986); Pamela Sankar et al., *Genetic Research and Health Disparities*, 291 JAMA 2985, 2988 (2004). See also Sandra Soo-Jin Lee et al., *The Meanings of "Race" in the New Genomics: Implications for Health Disparities Research*, 1 YALE J. HEALTH POL'Y, L. & ETHICS 33, 54-55 (2001).

²² DOROTHY NELKIN & M. SUSAN LINDEE, *THE DNA MYSTIQUE: THE GENE AS A CULTURAL ICON* 2, 149-68 (1995) (citing Leon Jaroff, *The Gene Hunt*, TIME, March 20, 1989, at 62-67).

²³ See BARBARA KATZ ROTHMAN, *THE BOOK OF LIFE: A PERSONAL AND ETHICAL GUIDE TO RACE, NORMALITY, AND THE IMPLICATIONS OF THE HUMAN GENOME PROJECT* xiii ("The science of genetics is not a racist science: but the ideology of genetic determinism, of a predetermined set of qualities passed from genotype to phenotype, from the DNA to the person, supports much that is racist in our society.").

There is a second precept in operation. As James Watson, winner with Francis Crick for their discovery of the double helix structure of DNA, has said, "our fate is in our genes."²⁴ Genetic determinism assumes that our genes have the power of prophesy and that our DNA presets who and what we can become.²⁵ Not surprisingly, genetic determinism can slip easily into genetic discrimination.²⁶ It only requires an appraisal of genetic worthiness and an accompanying action or failure to act. In a society that reflexively assigns value to difference, genetic discrimination seems inevitable.

Thus far, law and policy have addressed the risk of genetic discrimination by calling for genetic privacy or protection of genetic information.²⁷ The call for genetic privacy is based on the concern that employers, insurers, and others will make employment and coverage decisions based on identified or assumed genetic risk for specific diseases or disabilities.²⁸ Advocates for genetic privacy laws claim that genetic information needs special protection because we assign greater significance to genetic information than other health information.²⁹

²⁴ DOROTHY NELKIN & M. SUSAN LINDEE, *THE DNA MYSTIQUE: THE GENE AS A CULTURAL ICON* 7 (1995) (citing Leon Jaroff, *The Gene Hunt*, TIME, March 20, 1989, at 62-67).

²⁵ R.C. LEWONTIN, *BIOLOGY AS IDEOLOGY* 23 (1991).

²⁶ See generally R.C. LEWONTIN, STEVEN ROSE & LEON J. KAMIN, *NOT IN OUR GENES: BIOLOGY, IDEOLOGY, AND HUMAN NATURE* 68-74 (1984).

²⁷ See George J. Annas, *Genetic Privacy: There Ought to be a Law*, 4 TEX. REV. LAW & POL. 7 (1999); Deborah Hellman, *What Makes Genetic Discrimination Exceptional*, 29 AM. J. L. AND MED. 77 (2003). See generally GENETIC SECRETS: PROTECTING PRIVACY AND CONFIDENTIALITY IN THE GENETIC ERA (Mark A. Rothstein ed. 1997); Lori B. Andrews, *A Conceptual Framework for Genetic Policy: Comparing the Medical, Public Health, and Fundamental Rights Models*, 79 WASH. U.L.Q. 221, 278-79 (2001).

²⁸ See generally GENETIC SECRETS: PROTECTING PRIVACY AND CONFIDENTIALITY IN THE GENETIC ERA (Mark A. Rothstein ed., 1997); Lori B. Andrews, *A Conceptual Framework for Genetic Policy: Comparing the Medical, Public Health, and Fundamental Rights Models*, 79 WASH. U.L.Q. 221, 278-281 (2001); Deborah Hellman, *What Makes Genetic Discrimination Exceptional*, 29 AM. J.L. AND MED. 77, 77 (2003); Robyn B. Nicoll, *Long-Term Care Insurance and Genetic Discrimination – Get it While You're Young and Ignorant: An Examination of Current Discriminatory Problems in Long-Term Care Insurance Through the Use of Genetic Information*, 13 ALB. L.J. SCI. & TECH. 751, 758 (2003).

²⁹ See LAW IN PUBLIC HEALTH PRACTICE 250-51 (Richard A. Goodman et al. eds., 2003); George J. Annas, *Genetic Privacy: There Ought to be a Law*, 4 TEX. REV. LAW & POL. 7, 12 (1999); George J. Annas, Editorial, *Genetic Prophecy and Genetic Privacy: Can We Prevent the Dream from Becoming a Nightmare?*, 85 AM. J. PUB. HEALTH 1196, 1196 (1995); Mark A. Rothstein, *Why Treating Genetic Information*

Advocates recognize the central dynamic of genetic essentialism and genetic determinism – the over-signification of genetic information.

To the extent that we understand genes to be the bases for health/illness, genetic determinism prophesies our physical fates. However, it may be genetic discrimination, not the truth of the prophesy, that seals it. As the unified theory of the gene expands to include skills, aptitudes, and behaviors, genetic determinism becomes a prediction about who and what one can become as a person. Value judgments will inevitably follow. The greatest fear expressed thus far is that we will revive our past, our eugenic past.³⁰ Scholars³¹ and activists³² have documented the ways in which those judgments have already been operationalized. According to Troy Duster, a new era of eugenics has entered by the backdoor.³³

Duster argues that social concerns, not the unified theory of the gene are driving the new eugenics.³⁴ In particular, he argues that there is an interlocking relationship between the status of genetics, demographic and economic change, and the construct of race. “Then, just at the point in the intellectual history of the West when “race” was getting to be treated in both scientific and enlightened lay quarters as something no more than skin-deep, just when the social sciences thought they had won the battle with hereditarians over the fundamentally arbitrary importance of race in society, a new development came along to shake this assumption at its core: the growth of a body of research showing that *genetic disorders were*

Separately is a Bad Idea, 4 TEX. REV. L. & POL. 33 (1999) (arguing that genetic information is not unique in comparison to other health information).

³⁰ See generally DANIEL J. KEVLES, IN THE NAME OF EUGENICS (1985); WENDY KLINE, BUILDING A BETTER RACE: GENDER, SEXUALITY, AND EUGENICS FROM THE TURN OF THE CENTURY TO THE BABY BOOM (2001) (discussing accounts of eugenics in the 19th and 20th centuries,); JOSEPH L. GRAVES, JR., THE EMPEROR’S NEW CLOTHES: BIOLOGICAL THEORIES OF RACE AT THE MILLENNIUM 86-139 (2001); WILLIAM H. TUCKER, THE SCIENCE AND POLITICS OF RACIAL RESEARCH 36-137 (1994); JOHN HIGHAM, STRANGERS IN THE LAND: PATTERNS OF AMERICAN NATIVISM 1860-1925 (1955) (discussing accounts of the impacts of eugenics on immigrants).

³¹ See, e.g., TROY DUSTER, BACKDOOR TO EUGENICS (2d ed. 2003); Jason Christopher Roberts, *Customizing Conception: A Survey of Preimplantation Genetic Diagnosis and the Resulting Social, Ethical, and Legal Dilemmas*, 2002 DUKE L. & TECH. REV. 12 (2002); John A. Robertson, *Genetic Selection of Offspring Characteristics*, 76 B.U.L. REV. 421 (1996); John A. Robertson, *Procreative Liberty in the Era of Genomics*, 29 AM. J. L. & MED. 439 (2003).

³² See generally Center for Genetics and Society, <http://www.genetics-and-society.org> (last visited September 30, 2005).

³³ DUSTER, *supra* note 31, at 114-131.

³⁴ *Id.* at 6-20, 138-45.

distributed differently through different racial and ethnic groups."³⁵ Although Duster's thesis is yet premised on the scientific status of genetic knowledge that is the heart of the unified theory of the gene, his argument suggests that we focus not on the science, but on the formation of racial politics.³⁶

III. TRANSHUMANISM AND BIOPOLITICS: A CURIOUS ABSENCE OF RACE

Science Fictions

Reading about transhumanism triggers memories, the kind made from television and movie viewing, and science fiction reading. *Frankenstein* was first. Many regard Mary Shelley's novel of the scientist who reconstitutes life from body parts of the dead as the foundation novel of science fiction literature.³⁷ Since then, "Frankenstein" has become pop culture short hand for the perils of "playing god" or using science to exceed the bounds of "nature." Similarly, Nathaniel Hawthorne's, *The Birthmark*³⁸ and H.G. Wells's, *The Island of Dr. Moreau*³⁹ contain storylines about scientists who go too far. In *The Birthmark*, the scientist Aylmer cannot simply appreciate his wife's love and remarkable beauty. He is driven to use his knowledge to remove what he perceives to be Georgianna's one imperfection, a birthmark. In the process, he removes that which made her human, and she dies. In *The Island of Doctor Moreau*, Dr. Moreau commits atrocities to surgically create cross-species, animal-human hybrids with extraordinary combinations of ability, but ravaged natures. In the stories both scientists transgress boundaries of "nature" and "humanity" that transhumanism likewise brings into question.

Pop culture teems with characters about those who are no longer simply human. Those of us who watched television in the 1970s can recite from memory the opening voiceover of *The Six Million Dollar Man*.⁴⁰ "We can build him . . . We have the technology. We have the capability to make the world's first Bionic man. Steve Austin will be that man. Better than he was before. Better . . . stronger . . .

³⁵ *Id.* at 4 (emphasis in original).

³⁶ *Id.* at 137-45.

³⁷ See generally CARL D. MALMGREN, *WORLDS APART: NARRATOLOGY OF SCIENCE FICTION* (1991).

³⁸ NATHANIEL HAWTHORNE, *THE BIRTHMARK* (1846).

³⁹ H.G. WELLS, *THE ISLAND OF DOCTOR MOREAU* (1896).

⁴⁰ See Spiderman, <http://www.imdb.com/title/tt0071054/>.

faster.”⁴¹ Steve Austin was my generation’s first transhuman,⁴² and once a week, he embodied the promise of science, and in particular, of government-sponsored science.⁴³

Unlike The Six Million Dollar Man, most of the newer stories about transhumans are dark. The heroes live in worlds in which scientific knowledge, however it originated, is primarily harmful. In these stories, science is power. It degrades those who wield it and those made object by it. It harms the environment. And it centralizes authoritarian power to the point where the necessities of physical survival have made morality, creativity, and individuality trivial. The stories depict our worst fears of scientists, technocrats, and corporations run amuck with science and technology-enhanced power. William Gibson’s *Neuromancer*,⁴⁴ which ushered in cyberpunk as a science fiction sub-genre⁴⁵ and *Bladerunner*⁴⁶ exemplify these stories.

Although these stories should not become guidebooks for evaluating the ongoing debate about transhumanism, these cultural references spring unavoidably to mind when considering the claims being made in the debate. They stand as warnings or shorthand arguments. “Frankenfood,” for example, suggests the perils of genetically modified agricultural products.⁴⁷ The stories or characters

⁴¹ See Memorable Quotes from Six Million Dollar Man, <http://www.imdb.com/title/tt0071054/quotes>.

⁴² See Spiderman, <http://www.answers.com/topic/first-appearance-1>. Austin is the first transhuman, unless you count Spiderman, a Marvel Comics character who acquires superhuman powers after an irradiated spider bites him. Spiderman originated in 1962 or 1963. That is, the character first appeared in 1962, but The Amazing Spiderman comic book was first published in 1963. Thanks to friend and Spiderman aficionado, Matt Yuen, for the Spiderman research.

⁴³ While the allusion is admittedly ridiculous, The Six Million Dollar Man did stand out in one respect. Androids, cyborgs, and technologically enhanced humans were the exception during the 1970s. Space travel, time travel, and alien encounters were much more typical of both the science fiction and action genres of the decade. That said, it should be noted that both Alien and Star Wars had android characters.

⁴⁴ WILLIAM GIBSON, *NEUROMANCER* (1984).

⁴⁵ The Oxford English Dictionary defines cyberpunk as a “subgenre of science fiction typified by a bleak, high-tech setting in which a lawless subculture exists within an oppressive society dominated by computer technology; or, an author of, or protagonist in, such writing.” 3 OXFORD ENGLISH DICTIONARY: ADDITIONS SERIES 107 (Michael Proffitt ed., 1997).

⁴⁶ The movie, *Bladerunner* (1982), directed by Ridley Scott, was based on Philip A. Dick, *Do Androids Dream of Electric Sheep* (1968).

⁴⁷ See Frankenfood, <http://www.talkmedical.com/medical-dictionary/5848/Frankenfood> (last visited Jan. 29, 2006). The term is often used to express concern that such foods will cause harm to those who eat them.

that resonate with our fears, hopes or values may shape our responses to the transhumanist proposition. We may use them to make points that the authors may or may not have intended, thereby collaborating in the process of interpretation. Or, we may dismiss the stories as mere fiction, using them nonetheless to define our own "reality."

What is it about transhumanism that brings these particular stories to mind? The transhumanist proposition is that we can and should use biotechnology to enhance and alter human abilities.⁴⁸ Transhumanism's proponents aim to use biotechnology to enhance the healthy. The proposition challenges the boundaries we have used to define medicine, natural, and human. It also assumes we can distinguish between therapy and enhancement, natural and artificial, human and more- or less-than human. Biotechnology, according to the claims, could make us "better . . . stronger . . . faster."⁴⁹ It could double the human lifespan and make us smarter. Ability and appearance would depend on technology access and use, as well as inborn ability, training and opportunity, thus challenging our notions of merit, competition, and fair play, and hopefully prompting re-evaluation of the standards used to police those notions, as well.

We have already begun to address the issues. Professional (and amateur) sports and Hollywood are the most well-known sites of enhancement technology use.⁵⁰ In recent years, sports pages and even congressional hearings have featured accounts of steroid, methamphetamine, blood transfusion, and EPO use.⁵¹ Entertainment industry reporting frequently refers to face lifts, nose jobs, breast augmentations, collagen and BOTOX use. In sports, current rules of the game penalize certain performance enhancers as unsafe and

⁴⁸ See ALAN BUCHANAN, DAN W. BROCK, NORMAN DANIELS & DANIEL WIKLER, *FROM CHANCE TO CHOICE, GENETICS AND JUSTICE* (2000); JAMES HUGHES, *CITIZEN CYBORG: WHY DEMOCRATIC SOCIETIES MUST RESPOND TO THE REDESIGNED HUMAN OF THE FUTURE* (2004); RAMEZ NAAM, *MORE THAN HUMAN: EMBRACING THE PROMISE OF BIOLOGICAL ENHANCEMENT* (2005); GREGORY STOCK, *REDESIGNING HUMANS, OUR INEVITABLE GENETIC FUTURE* (2002).

⁴⁹ See Memorable Quotes from Six Million Dollar Man, <http://www.imdb.com/title/tt0071054/quotes>.

⁵⁰ These are not the only uses, of course. See, e.g., Andrew Jacobs, *The Adderall Advantage*, N.Y. TIMES, July 31, 2005, §4A, at 16 (describing college students widespread use of prescription stimulants such as Adderall and Ritalin to enhance academic performance).

⁵¹ See RAMEZ NAAM, *MORE THAN HUMAN: EMBRACING THE PROMISE OF BIOLOGICAL ENHANCEMENT* 20-24 (2005).

unfair.⁵² In the rest of the entertainment industry, appearance enhancers are simply tools of the trade. In both arenas, the technology use has placed the meanings and value of “natural” ability and beauty into play.

Though the transhumanist forecast clearly includes pharmaceutical use, it also depends heavily on genetic technology, information technology, and the more recently emerged nanotechnology. For example, the gold standard in pharmaceuticals right now is a memory-enhancing drug without debilitating side effects.⁵³ But the dream standard is gene therapy or the insertion of genetic material that the patient’s genome incorporates, which then prompts the patient’s body to produce the desired chemical on its own.⁵⁴ Genetic engineering figures in other steps to transhumanism, as well. Current lab research shows that relatively simple gene alterations can significantly extend the lifespan of nematodes and mice,⁵⁵ which suggests that genetic manipulation might also increase the human lifespan. Prebirth genetic selection is one of the most controversial and slippery topics. Existing technology such as amniocentesis and pre-implantation genetic diagnosis (PGD) allows the pre-birth identification of gender and the absence of specific disease risks.⁵⁶ Prospective parents could also use PGD to select pre-embryos created in vitro for desirable traits before pregnancy. In the future, genetic engineering might allow for the creation of specified traits in pre-implanted embryos. “Designer babies,” the shorthand used for this topic, raises questions about artificiality and superficiality in the process and results of the technology use.⁵⁷

Other technologies challenge our understanding of “human,” as well as our standards for “natural.” Electronic brain implants to create

⁵² Erin F. Floyd, *Comment, The Modern Athlete: Natural Athletic Ability or Technology at its Best?*, 9 VILL. SPORTS & ENT. L. FORUM 155, 156 (2002).

⁵³ See NAAM, *supra* note 48, at 48.

⁵⁴ See HUGHES, *supra* note 48, at 38-41; NAAM, *supra* note 48, at 19.

⁵⁵ See NAAM, *supra* note 48, at 82-84

⁵⁶ Jason Christopher Roberts, *Customizing Conception: A Survey of Preimplantation Genetic Diagnosis and the Resulting Social, Ethical, and Legal Dilemmas*, 2002 DUKE L. & TECH. REV. 12, ¶7 (2002), <http://www.law.duke.edu/journals/dltr/articles/PDF/2002DLTR0012.pdf>.

⁵⁷ Leon R. Kass, *Triumph or Tragedy? The Moral Meaning of Genetic Technology*, 45 AM. J. JURIS. 1, 9-11 (2000); John A. Robertson, *PROCREATIVE LIBERTY IN THE ERA OF GENOMICS*, 29 AM. J. L. AND MED. 439, 475; Caroline S. Wagner, *Commentary, The Weapons of Mass Creation: Are We Ready for Genetically Enhanced “Designer People”?* If so, *Who Will Make the Titanic Decisions Involved?*, L.A. TIMES (California Metro), Feb. 13, 2003, at 23.

human to computer interaction are in development now.⁵⁸ Nanotechnology might be used in the future to develop molecular-level robots to boost our immune systems or extend our lifespans.⁵⁹ The cyborg is approaching. While we seem to accept bovine and porcine to human tissue transplants, the prospect of using stem cell technology to create chimeras – organisms with cells or genes from two or more species, including humans.⁶⁰

One utopian vision of the future might imagine the eradication of genetic disease, disability, and defect. All would be smarter, stronger, faster, and longer-lived. In this vision, transhumanism would completely supplant natural selection, accelerate the timeline for species improvement, and remove the element of chance.⁶¹ It would, in fact, put us “on the cusp of what may prove to be our final evolutionary stage,”⁶² or, in an alternative version, position us as “the initiators of this new genesis.”⁶³ In all visions, the enhanced humans would be the result of a level of technological intervention not practiced today, and only imagined earlier, in fiction.

Biopolitics

Many of the arguments for, against, and about transhumanism address a wide range of issues and express a range of views. Some examine the boundary issues. Others address safety, access, eugenic concerns, and implications for autonomy and equality. The views cannot accurately

⁵⁸ See NAAM, *supra* note 48, at 181-87.

⁵⁹ John Miller, *Note, Beyond Biotechnology: FDA Regulation of Nanomedicine*, 4 COLUM. SCI. & TECH. L. REV. (2003), available at <http://www.stlr.org/html/volume4/miller.pdf> (last visited November 17, 2005); Aubrey de Gray, *Increasing Health and Longevity of Human Life: Infectious Diseases*, <http://www.foresight.org/challenges/health002.html> (last visited August 8, 2005); Aubrey de Gray, *Increasing Health and Longevity of Human Life: The Postponement of Aging*, <http://www.foresight.org/challenges/health001.html> (last visited August 8, 2005).

⁶⁰ Mark Jagels, *Note, Dr. Moreau Has Left the Island: Dealing with Human-Animal Patents in the 21st Century*, 23 T. JEFFERSON L. REV. 115, 122-124 (2000); Nicole E. Kopinski, *NOTE, HUMAN-NONHUMAN CHIMERAS: A REGULATORY PROPOSAL ON THE BLURRING OF SPECIES LINES*, 5 B.C.L. REV. 619, 624-626 (2004); Mark Henderson, *Fear over Human-Animal Embryos*, TIMES, August 16, 2005, at 20; Eleanor Mayne, *Scientists Creating Monkeys with Human Brains*, MAIL ON SUNDAY, July 10, 2005, §3, at 41.

⁶¹ See NAAM, *supra* note 48, at 233.

⁶² Francoise Bayliss & Jason Scott Robert, *The Inevitability of Genetic Enhancement Technologies*, 18 BIOETHICS 1-26, 25 (2004).

⁶³ See NAAM, *supra* note 48, at 234.

be divided into support and opposition.⁶⁴ Many who support enhancement technology would also embrace its regulation. And many who would substantially limit the use of enhancement technology would oppose outright bans. A less inaccurate initial distinction, if one is to be made, might be between proponents optimistic about a transhumanist future, and critics more skeptical about the effects of transhumanism on individuals and society. The biopolitical spectrum, if you will, is fairly broad. Proponents include those expressing libertarian,⁶⁵ liberal,⁶⁶ including pro-choice liberal feminist⁶⁷ and leftist viewpoints.⁶⁸ Critics have used liberal,⁶⁹ socially conservative,⁷⁰ and socially progressive,⁷¹ including progressive feminist⁷² arguments.

⁶⁴ But see JAMES HUGHES, CITIZEN CYBORG, WHY DEMOCRATIC SOCIETIES MUST RESPOND TO THE REDESIGNED HUMAN OF THE FUTURE 75 (2004). Hughes distinguishes between Bio-Luddites and Transhumanists. In Hughes' analysis, the distinction is between those who insist that we remain "human" and those who insist that the goal is "personhood."

⁶⁵ See, e.g., RAMEZ NAAM, MORE THAN HUMAN: EMBRACING THE PROMISE OF BIOLOGICAL ENHANCEMENT (2005); GREGORY STOCK, REDESIGNING HUMANS: OUR INEVITABLE GENETIC FUTURE (2002); JULIAN SAVULESCU, PROCREATIVE BENEFICENCE: WHY WE SHOULD SELECT THE BEST CHILDREN, 15 BIOETHICS 413-26 (2001).

⁶⁶ See, e.g., JAMES HUGHES, CITIZEN CYBORG: WHY DEMOCRATIC SOCIETIES MUST RESPOND TO THE REDESIGNED HUMAN OF THE FUTURE (2004).

⁶⁷ See NARAL Pro Choice America, *Science and Women's Health*, <http://www.prochoiceamerica.org/Issues/science/index.cfm>; WILLIAM SALETAN, BEARING RIGHT: HOW CONSERVATIVES WON THE ABORTION WAR 271-73 (2003). See also NOW, *Below the Belt: Skirting the Rules again*, <http://www.now.org/news/note/120304.html>; CENTER FOR REPRODUCTIVE LAW AND POLICY, *Reproductive Freedom News*, at http://www.reproductiverights.org/rfn_00_12.html; PLANNED PARENTHOOD, *Donating Fetal Tissue for Medical Treatment and Research*, <http://www.plannedparenthood.org/pp2/portal/files/portal/medicalinfo/abortion/fact-010600-fetaltis.xml>.

⁶⁸ See, e.g., ALLEN BUCHANAN ET AL., FROM CHANCE TO CHOICE: GENETICS AND JUSTICE (2000).

⁶⁹ See, e.g., FRANCIS FUKUYAMA, OUR POSTHUMAN FUTURE: CONSEQUENCES OF THE BIOTECHNOLOGY REVOLUTION (2002); MAXWELL J. MEHLMAN, WONDERGENES: GENETIC ENHANCEMENT AND THE FUTURE OF SOCIETY (2003).

⁷⁰ See generally THE PRESIDENT'S COUNCIL ON BIOETHICS, BEYOND THERAPY: BIOTECHNOLOGY AND THE PURSUIT OF HAPPINESS (2003), available at http://www.bioethics.gov/reports/beyondtherapy/beyond_therapy_final_webcorrected.pdf.

⁷¹ See generally UCLA CENTER FOR SOCIETY AND GENETICS, <http://www.societyandgenetics.ucla.edu> (last visited September 29, 2005).

Thinking about the role of race in unequal health care gives rise to two observations about the transhumanist debate. First, there is a curious absence of race, particularly on the proponent-side of the debate. This absence is made notable by the return of biological race in genetic discourse, and recent attention to the role of racism in health status and health care.⁷³

My second observation may help explain the absence of race. The debate about transhumanism is taking place almost exclusively within a modernist framework. The terms of engagement use notions of autonomy, choice, and equality in a world in which individuals act on, not within particular social contexts. Proponents and critics express a faith in human progress even as they contest the direction of that goal. They assume the existence of universal moral principles,⁷⁴ but debate the details. Modernist analysis uses several mechanisms to cabin race and racism. But generally speaking, the modernist analysis locates racism in specific wrong-minded individuals and in particular institutional structures, standards, and practices. Modernists, therefore, recognize that racism is pervasive and historically-rooted. They fail, however, to appreciate or even see how integral race-based valuations and associations are to cultural formations, including our standards for and perceptions of common sense,⁷⁵ ability,⁷⁶ and illness.⁷⁷

⁷² For example, Pro Choice Feminists for Responsible Research support stem cell research, but call for regulations to protect women's health, autonomy, and to call for distributional justice in technology access.

⁷³ See, e.g., INSTITUTE OF MEDICINE, *UNEQUAL TREATMENT: CONFRONTING RACIAL AND ETHNIC DISPARITIES IN HEALTH CARE* (Brian D. Smedley et al. eds., 2003); Rene Bowser, *Eliminating Racial and Ethnic Disparities in Medical Care*, 30 BRIEF 24 (Summer 2001). Lisa C. Ikemoto, *Racial Disparities in Health Care and Cultural Competency*, 48 ST. LOUIS U.L.J. 75, 75 (2003); Barbara A. Noah, *Racist Health Care?*, 48 FLA. L. REV. 357 (1996); Barbara A. Noah, *Racial Disparities in the Delivery of Health Care*, 35 SAN DIEGO L. REV. 135, 154-56 (1998); David Barton Smith, *Addressing Racial Inequities in Health Care: Civil Rights Monitoring and Report Cards*, 23 J. HEALTH POL'Y & L. 75, 77 (1998); Sidney D. Watson, *Race, Ethnicity and Quality of Care: Inequalities and Incentives*, 27 AM. J. L. & MED. 203 (2001); Symposium, *Unequal Treatment: Racial and Ethnic Disparities in Health Care*, 48 ST. LOUIS U.L.J. 1 (2003); Symposium, *Disentangling Fact From Fiction: The Realities of Unequal Health Care Treatment*, 9 DEPAUL J. HEALTH CARE L. 1 (2006).

⁷⁴ See Margrit Shildrick, *Genetics, Normativity, and Ethics: Some Bioethical Concerns*, 5 FEMINIST THEORY 149, 150 (2004), Teresa Heffernan, *Bovine Anxieties, Virgin Births, and the Secret of Life*, 53 CULTURAL CRITIQUE 116, 117 (2003).

⁷⁵ See Stuart Alan Clarke, *Fear of a Black Planet: Race, Identity Politics and Common Sense*, 21 SOCIALIST REV. 37 (1991).

Modernism makes most forms of racism either invisible or irrelevant.⁷⁶ Race-neutrality or colorblindness is feasible within this framework. So, a modernist could write about the future without ever acknowledging the centrality of racial formation in our lives.

In one of the most recent books about transhumanism, transhumanism proponent Ramez Naam discusses the potential use of gene therapy to darken skin for the purposes of creating resistance to skin cancer. He describes the lab work on mice that changed the fur of albino mice from white to brown, their eyes from pink to black, and then back to albino again. In this discussion, the closest Naam gets to mentioning race is the statement, “[p]ale skin is a risk factor for skin cancer.”⁷⁹ That is, in fact, his closest approach to race in the entire book. Bouyant optimism characterizes Naam’s analysis. He responds to Bill McKibben⁸⁰ and Leon Kass,⁸¹ two of the most severe critics who invoke traditional concepts of “natural” and “human,” and who predict in different ways that eliminating those boundaries will result in environmental and humanitarian degradation. Naam rejects the biological essentialism inherent in those views and asserts that what makes us human is the need to “reach beyond our grasp.”⁸² He deploys the grand explorer as the defining figure of our evolutionary progress thus far and of our inevitable progress in the future.

⁷⁶ See Jeffrey C. Kirby, *Disability and Justice: A Pluralistic Account*, 30 SOCIAL THEORY & PRACTICE 229 (2004).

⁷⁷ See, e.g., ELIZABETH FEE, SIN VERSUS SCIENCE: VENEREAL DISEASE IN TWENTIETH-CENTURY BALTIMORE, in AIDS: THE BURDENS OF HISTORY 121, 127 (Elizabeth Fee & Daniel M. Fox eds., 1988) (explicating how syphilis came to be construed as a “black disease”); JAMES H. JONES, BAD BLOOD: THE TUSKEGEE SYPHILIS EXPERIMENT 22 (1981) (discussing the conflation of racist beliefs about Black sexual behavior with disease causation); MATTHEW GANDY, LIFE WITHOUT GERMS: CONTESTED EPISODES IN THE HISTORY OF TUBERCULOSIS, in THE RETURN OF THE WHITE PLAGUE: GLOBAL POVERTY AND THE ‘NEW’ TUBERCULOSIS 28-30 (Matthew Gandy & Alimuddein Zumla eds., 2003) (describing the interpolation of middle-class anxiety over immigration and race-mixing in the United States into explanations for differences in morbidity and mortality rates by race and class); PAUL FARMER, AIDS AND ACCUSATION: HAITI AND THE GEOGRAPHY OF BLAME (1993) (assessing, in part, the American cultural trait of dealing with problems by blame-placing and that trait’s role in incorrectly identifying Haiti as the source of HIV).

⁷⁸ See Charles Lawrence III, *The Id, the Ego, and Equal Protection: Reckoning with Unconscious Racism*, 39 STAN. L. REV. 317, 329-44 (1987).

⁷⁹ NAAM, *supra* note 48 at 29.

⁸⁰ Bill McKibben authored *Enough: Staying Human in an Engineered Age*.

⁸¹ Leon Kass, a bioethicist, has chaired the President’s Council on Bioethics for the past few years, and is usually characterized as a social conservative.

⁸² NAAM, *supra* note 48, at 228.

"We owe everything about our current lives to our predecessors on this earth, the ones who would not stand for "enough" and instead asked, "What next?" Those brave, foolhardy inventors and explorers sought out better ways to live If we can never repay that debt, we can perhaps pay it forward to future generations. We cannot perfectly predict, may not even be able to imagine, the ways that our descendants will put the technologies we develop to use. Yet the lesson of history is that they will use the powers we provide them to make their world a better place. Now it's time to do what past generations did for us, to explore the world . . ." ⁸³

Naam's vision of the future is appealing, and seems at first, transcendent. "We will not all opt for the same changes . . . Some of us will choose to stay as we are, while others will chose to transform. Humanity will expand, splinter, and blossom . . . these descendants of ours will be fantastically diverse." ⁸⁴ But Naam's most basic assumption is of the universally sovereign subject who acts on, but not in social contexts. Modernism binds his analysis and his vision for the future.

One of the most influential critics of transhumanism, Francis Fukuyama, also points to history. Fukuyama, however, uses history to explain "why we should worry." "Hanging over the entire field of genetics has been the specter of eugenics." ⁸⁵ Fukuyama distinguishes past eugenic practices in the U.S. from those emerging now, but he takes seriously the "dehumanizing potential" of genetic engineering. ⁸⁶ Like Naam, Fukuyama argues that an essential human nature exists, but posits a human moral sense as the constant. ⁸⁷ While Naam seems to simply assume that we are all equal in an unregulated world, Fukuyama defines the continuous struggle over who is human as central to human history. ⁸⁸ In considering the future, he identifies the possibility, given our history, that social elites will use genetic engineering to embed their social advantages in their offspring, create a genetic overclass and

⁸³ *Id.* at 228-29.

⁸⁴ *Id.* at 233.

⁸⁵ FUKUYAMA, *supra* note 69, at 85.

⁸⁶ *Id.* at 88.

⁸⁷ *Id.* at 102.

⁸⁸ *Id.* at 150.

exacerbate social hierarchy.⁸⁹ In Fukuyama's opinion, the only alternative would be state-sponsored genetic engineering "to raise up the bottom."⁹⁰ And this, in his analysis, would resurrect state-sponsored eugenics.⁹¹ The solution, then, is to regulate, according to principles of what he calls, "natural human rights."

Fukuyama doubts the survival of human nature in posthuman world,⁹² because he doubts the stability of human values in a world where human difference becomes "real" – biologically-based. He embraces human variety and describes the means to achieving equality as inclusion, yet he fears the effects of unfettered choice. He acknowledges existing social hierarchies and the risk that transhumanist technology could exacerbate them. What he offers is a direct response to libertarian proponents of transhumanism like Naam. What he shares with them is a goal called human progress, to be achieved by adherence to principles which, when universalized, lose their content. Abstraction per se is not problematic. But applying abstract principles requires interpretation. In the world of hierarchy that Fukuyama acknowledges, the elites control interpretation, usually at the expense of the non-elites. But at that last critical step, his analysis becomes as acontextual as Naam's. Fukuyama's adherence to "human values" as a constant is only possible in a world of status quo, and it is the uncritical use of abstract universal principles without regard to social context that help maintain status quo. Ultimately, by failing to account for the effects of existing social context on his constant, Fukuyama renders himself color-blind.

Postmodern Issues in Modernist Clothes

Transhumanism and its possibilities challenge, and even contradict modernist assumptions. Humanism, within a modernist framework, centers the body. The body is the locus for rights, dignity, and identity. In bioethics, the most basic doctrine is informed consent. In a modernist analysis, informed consent protects the linked values of decisional autonomy and bodily integrity. Informed consent says that the physical self constitutes the ultimate boundary between the self and the state. Feminist theorists have shown the fallacy of the autonomous patient by revealing how pre-existing social inequalities between

⁸⁹ FUKUYAMA, *supra* note 69, at 157.

⁹⁰ *Id.* at 158.

⁹¹ *Id.* at 159.

⁹² *Id.* at 218.

physician and patient are replicated in the informed consent process,⁹³ or how unconscious incorporation of gender stereotypes in the decisionmaking process affects patient care.⁹⁴ Transhumanism challenges the corporeal approach itself.

Transhumanist proponents and critics have skirmished awkwardly over the need to preserve various aspects of the human body as we know it, or the effects of corporeal changes on human essence.⁹⁵ The technologies at issue, however, move the body out from under us. Take, for example, genetics. Our faith in genetics has changed the metaphors we use to describe the basis for life. The gene, as mentioned, is the code, the blueprint, the bible of life.⁹⁶ The body has become a set of codes.⁹⁷ It is not that the body has become irrelevant. The focus has shifted – the body is now the expression of the basic unit of life, the gene. Identity resides primarily within our DNA.

The modernist concept of an autonomous subject cannot accommodate the shifts between biology and identity. Modernists often contest the location of boundaries, but they rely on them nonetheless, using binaries to set boundaries.⁹⁸ The autonomous sovereign subject is typically defined in opposition to others. The “others” have been and are at different times, animals, machines, people of color, women, and nature.⁹⁹ Francis Fukuyama acknowledged the reliance on definitional binaries when he said that a key contest in history has been the issue of who falls on which side of human/other line. Transhumanist proponent James Hughes would change the content of the binary to persons/other, but would embrace the binary itself.¹⁰⁰ Yet the gene as code raises questions about who or what is sovereign and who or what is subject.

Postmodern feminist Donna Haraway, has stated, “[h]igh tech culture challenges these dualisms in intriguing ways. It is not clear

⁹³ SUE FISHER, *IN THE PATIENT’S BEST INTERESTS* 12 (1986).

⁹⁴ See generally Steven H. Miles & Allison August, *Courts, Gender and “The Right to Die,”* 18 L. MED. & HEALTH CARE 85 (1990).

⁹⁵ See GREGORY STOCK, *REDESIGNING HUMANS: OUR INEVITABLE GENETIC FUTURE* 19-34 (2002).

⁹⁶ See *infra* n.15.

⁹⁷ Shildrick, *supra* note 74, at 150.

⁹⁸ See Teresa Heffernan, *BOVINE ANXIETIES, VIRGIN BIRTHS, AND THE SECRET OF LIFE*, 53 CULTURAL CRITIQUE 116, 118 (2003).

⁹⁹ See Donna Haraway, *A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s*, 80 SOCIALIST REV. 65, 71-72 (1985).

¹⁰⁰ See HUGHES, *supra* note 48, at 221-240.

who makes and who is made . . . It is not clear what is mind and what body in machines that resolve into coding practices . . . There is no fundamental, ontological separation in our formal knowledge of machine and organisms, of technical and organic.”¹⁰¹ I noted earlier that enhancement technology use puts the meaning of the normative boundaries into play. If gene therapy causes “foreign” genetic material to be inserted into the nuclei of patient cells, thereby prompting those cells to produce desired proteins, is the patient now producing that protein “naturally”? If the material was synthetic, is the patient now a cyborg? If the material was engineered using mouse DNA, is the patient now a chimera?

In *The Birthmark*, Hawthorne tells us what disability rights advocates have more recently claimed, that “defect” is in the eye of the beholder and that one’s humanity might be inextricably tied to the “defect.”¹⁰² His story also suggests that in marriage, as in society, it is the beholder, not the “defective” who has the apparent power to define. Hollywood insiders might agree with Hawthorne’s insights. They might also have something to say about how artificial standards of beauty, however lacking in intrinsic value they may be, can become simultaneously normal and abnormal, and always tyrannical. High tech culture’s challenges to modernist boundaries can expose both the artifice and the tyranny of them.

Challenging the boundaries, exposing them as art and power, can open space for claiming interpretive power. The timing for this effort may be fortuitous.

The fight among modernists may not be, as it appears, only a fight over the scope of autonomy or the true basis for human nature. It may be viewed, as well, as a struggle for relevance. The vigor with which proponents and critics engage the issues suggests, of course, that enhancement technology use may have serious consequences. That vigor may also indicate that the weapons are dull. The dispute over the content and resiliency of human essence is being waged fiercely. Dualisms depend on essentialisms. Essentialisms constitute both the line and the justification for the line drawing. Biological race

¹⁰¹ Donna Haraway, *A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s*, 80 SOCIALIST REV. 65, 97 (1985).

¹⁰² Deborah Kaplan, *The Definition of Disability: Perspective of the Disability Community*, 3 J. HEALTH CARE L. & POL’Y 352, 355 (2000); Jeffery C. Kirby, *Disability and Justice: A Pluralistic Account*, 30 SOC. THEORY & PRAC. 229, 232-33 (2004); Laura L. Rovner, *Disability, Equality, and Identity*, 55 ALA. L. REV. 1043, 1051-54 (2004).

reinscribes socially constructed race and reinforces the reason for recognizing "race" in the first place. The lines that transhumanism's possibilities blur put the stakes into question. If the central dualism, self/other, cannot be maintained, then all of our boundaries may be compromised.

This is not, as you might be thinking, a *Matrix* moment, when the code comes tumbling down. But this might be a moment when the defenses are thin, and a bit of code is exposed as such. The trick then is to find and probe the complexities, the simultaneities, the ambiguities in order to reveal that the simplicity and clarity wrought by modernist analysis is constructed and confining.¹⁰³ Doing so, for example, could make the social construction of "nature" obvious and unmistakable, which in turn, could undermine genetic essentialism and genetic determinism.¹⁰⁴

The Birthmark and *The Island of Dr. Moreau* both rely on dualisms between human/inhuman and natural/unnatural. In those stories, the dualisms hold strong and the points of transgression are clear. H.G. Well's tale, in particular, contains little ambiguity. The draw is the initial mystery for the narrator (and the reader) who visits Dr. Moreau on his island, with no knowledge that Moreau has been conducting surgical experiments to create cross-species hybrids. The ultimate draw, however, is the horror that dawns as Dr. Moreau's transgressions become known. In the context of the story, the boundaries are difficult to challenge. Using the transhuman to probe the boundaries, however, reveals their malleability. Consider the patient who received gene therapy. Is her body now functioning naturally or unnaturally? Does the insertion of genetic material that includes mouse DNA make her less human? It is not the answers that matter, but the questioning process.

In *Bladerunner*,¹⁰⁵ the protagonist, Deckard, is a well-known modernist archetype. He is the lone, autonomous underdog who is employed by, but not servant to the powers that be. As a "blade runner" Deckard tracks and kills genetically engineered replicants or humanoids gone awry. Their transgression is that they want to be human. The replicants have implanted memories that they hold dear and a fierce desire to live. They evoke our sympathy and challenge the biological essentialism in "human," in part because the social and physical context depicted seems so inhumane. The story challenges

¹⁰³ Haraway, *supra* note 99, at 82-84; LISA LOWE, IMMIGRANT ACTS 63-70 (1996).

¹⁰⁴ Shildrick, *supra* note 74, at 152.

¹⁰⁵ BLADE RUNNER (Warner Studios 1982).

Deckard and the reader to drop the boundary drawn by the natural/artificial dualism and expand the definition of “human.” The other dualism of this movie, created by the “dueling” endings, ironically reinforces the challenge. The initial release of the movie featured an ending in which Deckard and Rachel, the replicant woman he loves, fly away. Deckard’s voiceover tells the viewer that Rachel has no pre-set termination date. This indicates that she will live a human life-span. The studio apparently preferred this happy ending over the darker ending the director had planned. It also may be that this ending is less disturbing. The lack of a pre-set termination date humanizes Rachel, making her union with Deckard, who is unquestionably human, more acceptable. The Director’s Cut, released years later, omits the voiceover, creating an ambiguous ending in which Rachel’s fate, and therefore Deckard’s are unknown. A final image suggests, but does not resolve the possibility that Deckard, too, might be a replicant, thus asking the viewer to once again reconsider the boundaries at play.

These accounts illustrate that we can deploy the figure of the transhuman to challenge the social constructions that underpin biological essentialism. Within a modernist framework, the obvious move is to define a non-biological universal standard. Naam uses the desire “to reach beyond our grasp” as the universal human essence. Fukuyama sets out a claim of basic human values. Hughes asserts an expansive understanding of personhood. The postmodernist’s task is to exploit the moment in which the boundaries are at play and to show how the porousness of abstract criteria allows existing social arrangements to replicate themselves. *Bladerunner* is, as told, a modernist tale. But a postmodernist reading is always possible – One could find a trait that makes the replicants human. For example, they seek to reach beyond their grasp and live as humans. But, what makes them seem so very human is their complexity, their distinct personalities, their nuance, and their self-awareness that while they are artificial and therefore doomed, they feel human.

Postscript: The Director’s Cut was well-accepted. The general popularity of director’s cuts may explain this. It may be that the studio was wrong about audience tolerance for ambiguity and not-happy endings. It might also be the result of what Haraway calls the “ubiquity and invisibility of cyborgs,” and their resulting deadline.¹⁰⁶ Some of the transhumanist proponents imagine that there will be big, obvious

¹⁰⁶ Haraway, *supra* note 99, at 71.

moments when we have to make choices, and that those moments will be defining. Haraway suggests the opposite, that those moments are already passing, that they are silently redefining normativity. Perhaps in the span of the movie, in the context of the story, the ubiquity and the invisibility (of some) of the cyborgs shifted our normative understanding of the human. We may already be living in a transhuman world. If normative shifts occur so silently and quickly, then we will not have noticed the change. Anticipating the shifts, however, may open additional opportunities to intervene.

V. RACE AND HEALTH IN A POSTHUMAN WORLD

Dystopian possibilities

Imagining the dystopian possibilities seems relatively easy. Fukuyama and others have already forecast the creation of a genetic overclass formed by and for the existing overclass. Transhumanism proponent James Hughes refers to this as the “X-Men mythos.”¹⁰⁷ By implication, underclasses reinscribed on existing lines, including racism, would form, as well. The legitimacy and perceived utility of biological race, in other words, would ascend. In a culture that assigns relative value to difference, genetic discrimination and eugenic choices would become normalized. These practices would exacerbate the meaning assigned to and the consequences of difference. This would, finally, naturalize inequalities in health status and health care.

In this scenario, the boundary between human and nonhuman holds fast. Humans continue to be seen as unique, autonomous beings who can, as a simple act of will, overcome their “situations,” including those implicating race.¹⁰⁸ The nonhuman is treated as an assimilated part or as owned, patented, or otherwise controlled. Teresa Heffernan refers to this process as cooptation. The result is domination of the nonhuman.¹⁰⁹

While communities of color may be assigned to the human side of the boundary, their underclass status may make them vulnerable to exploitation and appropriation. Current practices suggest the

¹⁰⁷ JAMES HUGHES, CITIZEN CYBORG: WHY DEMOCRATIC SOCIETIES MUST RESPOND TO THE REDESIGNED HUMAN OF THE FUTURE 75-106, 221-232 (2004) (describing a citizenship-property schema as the crux of a “transhuman democracy,” that changes the existing distinction from human/nonhuman to persons/non-persons. Persons includes humans and others with feelings and consciousness).

¹⁰⁸ Heffernan, *supra* note 74, at 128.

¹⁰⁹ *Id.*

significance of these risks. Attempts to market products to particular racial groups – e.g. BiDil – may legitimize biological race.¹¹⁰ Efforts to gather DNA from specific populations for commercial purposes creates very real risk of exploitation and commodification.¹¹¹ The same practice on groups whose cultural frameworks make capital exchange in or loss of control over genetic material immoral, unnatural, or otherwise unacceptable depends on “the power of the west to override contrary value systems.”¹¹² More generally, the use of contract, the characterization of genetic material, embryos, gametes as commercial products threatens to commodify those who “produce” them as well. What these risks demonstrate is that technology development and use, and the ways in which we rate the use, take place in contexts in which racism operates as a harmful and divisive force.¹¹³ Science does not disrupt, but incorporates racism’s power, and then reciprocates.

The Hard Work of Hope

If we can use critical analysis to reveal ambiguity and complexity, and to anticipate the silent, creeping normative shifts that could produce a dystopia, then we must also be prepared to do something constructive with the discursive space that we have made. This is the hard part. The initial difficulty arises from the complicities formed, the pacts made in order to do anti-racist work. The final hurdle is the difficulty of imagining outside of our current social reality.

Race conscious analysis sometimes incorporates practices that have implications for the role of biomedical science in our futures. One problem is that of reflexive opposition. The problem is understandable. For anti-racists, opposition often has been and continues to be the most principled and effective strategy. Once the dystopian possibilities emerge, logic seems to dictate opposition to transhumanism and to transhumanism proponents. Well-founded suspicion of science and technology may reinforce the oppositional reflex. That logic, however,

¹¹⁰ Jonathan Kahn, *How a Drug Becomes “Ethnic”: Law, Commerce, and the Production of Racial Categories in Medicine*, 4 YALE J. HEALTH POL’Y, L. & ETHICS 1, 35-38 (2004). See Rene Bowser, *Race as a Proxy for Drug Response: The Dangers and Challenges of Ethnic Drugs*, 53 DEPAUL L. REV. 1111, 1122-26 (2004); Erik Lillquist & Charles A. Sullivan, *The Law and Genetics of Racial Profiling in Medicine*, 39 HARV. C.R.-C.L. L. REV. 391, 474-79 (2004).

¹¹¹ See BRONWYN PARRY, TRADING THE GENOME: INVESTIGATING THE COMMODIFICATION OF BIO-INFORMATION 12-41 (2004) (providing an analysis of how objectification and commodification arises from collecting biological material).

¹¹² Shildrick, *supra* note 74, at 161.

¹¹³ See *id.* at 160.

results from binary-bound thinking. The dystopian vision is not inevitable. Nor is transhumanism necessarily an either/or proposition. We already may be, as Donna Haraway suggests, living in a transhumanist world. Furthermore, it is possible to both embrace enhancement technology and social change. Direct opposition may foreclose opportunities to intervene.

Assuming the position of critic, in opposition to proponents, also may limit our power to intervene. The most powerful and likely alliance among proponents is between libertarians and liberals. James Hughes, in fact, has proposed a basis for that alliance.¹¹⁴ However, when liberal pro-choice feminists courted libertarians in the fight against parental consent requirements for abortion, the resulting alliance moved the issue framing to the right.¹¹⁵ The shift created a short term political win, but a long term loss for the movement.¹¹⁶ It has negatively affected progressive feminists, including many women of color. A libertarian-liberal alliance among transhumanism proponents would not automatically produce the same result. But the potential meld between operating rules premised on free market individualism that dominate the health care and biotech industries, and libertarianism indicates that the risk is real. Opposition from critics would not prevent, and may actually enhance the shift to the right. The strong position may actually be one that is independent, and not allied to the traditional power brokers.

A second problem is that the racial identities we have claimed for ourselves sometimes, perhaps often, place an “essence” at their core. We assert our identities in response to those imposed on us. Because of that, our claimed identities often reflect – as the result of their oppositional formation – what we are rejecting. Thus, biological race may have appeal because it seems to offer a basis for founding or maintaining community, or because it provides a simpler explanation for health status. Or, we may claim identity and community based on what we posit is the shared experience of particular forms of oppression. In doing so, we can cling so closely to certain accounts of racial identity and racism that those whose identity and experience deviate from those accounts are excluded from the group. Identity then becomes a tool for policing the racial boundaries from within. This can bolster or simply replicate the imposed racial boundaries, expanding

¹¹⁴ HUGHES, *supra* note 48, at 216-220.

¹¹⁵ See WILLIAM SALETAN, BEARING RIGHT: HOW CONSERVATIVES WON THE ABORTION WAR 57-83 (2003).

¹¹⁶ See SALETAN, *supra* note 67, at 84-107.

the significance of racial difference.¹¹⁷ As many have now observed, it can also isolate those defined by the intersection of race and other subgroup status.¹¹⁸ Gay men and lesbians have experienced this phenomenon. The excluded are placed at greater risk of inadequate health care access and quality of care.¹¹⁹ The appeal of community formation and the way identity feels, as a lived experience, make it difficult to reject a positive, but essentialized identity. But essentialized identity is inaccurate and excluding, no matter who claims it.

Postmodern analysis points to the necessity of continuous intervention and continuous reassessment of the possibilities. Rejecting reflexive opposition means recusal from intervention premised on anti-science, anti-technology viewpoints and refusal to participate in anti-science, anti-technology knowledge work.¹²⁰ Past uses of biological race, racist eugenics, immigration restrictions, quarantines, race-based exploitation as in the Tuskegee Syphilis Experiment, race, culture and language-based barriers to health care access, and the role of racism in unequal health care may make recusal difficult to swallow. Staking out the “natural” or “organic” position may be tempting. We can, however, challenge racism in health care and biomedical research without taking an anti-science stance.

Haraway and sociologist Stanley Aronowitz both call for “taking responsibility for the social relations of science and technology.”¹²¹ This is harder than oppositional work. For Haraway, it means “embracing the skillful task of reconstructing the boundaries of everyday life, in partial connection with others, in communication with all of our parts.”¹²² For Aronowitz it means building “a new scientific citizenship in which democratic forms of decision making were shared between the scientific community and the public.”¹²³ He cites the example of ACT-UP.

¹¹⁷ This may be particularly true of biological race.

¹¹⁸ See Angela P. Harris, *Race and Essentialism in Feminist Legal Theory*, 42 STANFORD L. REV. 581, 588-89 (1990).

¹¹⁹ CATHERINE WALDBY, AIDS AND THE BODY POLITIC: BIOMEDICINE AND SEXUAL DIFFERENCE 103-05 (1996); Paula A. Treichler, *AIDS, Homophobia, and Biomedical Discourse: An Epidemic of Signification*, in AIDS: CULTURAL ANALYSIS, CULTURAL ACTIVISM 44-45 (Douglas Crimp ed., 1988).

¹²⁰ See Haraway, *supra* note 99, at 100.

¹²¹ *Id.* at 100.

¹²² *Id.*

¹²³ Stanley Aronowitz, *The Politics of the Science Wars*, in SCIENCE WARS, *supra* note 3, at 202, 223 (emphasis in original).

“ACT-UP, an organization of gay and straight activists concerned with the spread of the AIDS epidemic began by demanding more funds for AIDS research and now intervenes in scientific disputes as to the best treatment for the disease. By force of circumstance as much as by conscious knowledge, it was obliged to question many of the precepts of its own membership, namely, that the doctor knows best. Gradually, members became sophisticated in many areas of the history and philosophy of science. Imagine a polity capable of challenging the uses and truth claims of scientific and technological research.”¹²⁴

What Haraway and Aronowitz recognize is that postmodernism can only establish political relevance by political organizing.

The Center for Genetics and Society (CGS) provides a more recent example of how the work of intervention and reassessment can be accomplished in a politically relevant way. Longtime progressive activists formed CGS in 2001 “to stimulate debate on the social justice implications of new genetic technologies,”¹²⁵ and look for ways to “allow legitimate medical research to proceed, but draw the line against this new techno-eugenics.”¹²⁶ The CGS mission statement says that “[t]he Center supports benign and beneficent medical applications of the new human genetic and reproductive technologies, and opposes those applications that objectify and commodify human life and threaten to divide human society.”¹²⁷ Since 2004, CGS has questioned the terms and implementation of California’s Proposition 71, the California Stem Cell Research and Cures Initiative. Passage of Proposition 71 established the California Institute of Regenerative Medicine. The ballot measure also provided for \$3 billion in funding for stem cell research at institutions within the state and a 29-member governing board for the Institute. Initially, CGS stood practically alone, raising questions about governing board conflicts of interest, the lack of legislative oversight and accountability to the public, the need for measures to protect potential egg donors from exploitation and

¹²⁴ Aronowitz, *supra* note 3, at 223.

¹²⁵ Tali Woodward, *Best of the Bay 2005: Local Heroes*, S.F. BAY GUARDIAN, July 27, 2005, at 62.

¹²⁶ *Id.* at 62 (quoting co-founder, with Marcy Darnovsky, and Executive Director Richard Hayes).

¹²⁷ Center For Genetics and Society, About Us, <http://www.genetics-and-society.org/about/> (last visited July 30, 2005).

unjustified health risks, and the desirability of making potential research benefits available to all. Since the bill became effective, January 1, 2005, public officials, the mainstream news media, and other community-based organizations joined CGS in the intervention process. The Institute has, in many ways, responded to the concerns being raised. What the public is learning is that, despite what the anti-science social conservatives say, this is not all about the embryo wars; this is about the potential of biomedical research to develop technologies that could impair the health and status of women and people of color even as it improves the health of others.

The California public has not yet learned to see how the commercial nature of science and technology may have already shifted normativity. The greatest concern is not that transhumanism is already here. The greatest concern is that commodification has already subsumed much of identity, and what is being lost is not autonomy, but subjectivity. While the intermediate effect – the normative shift – is intangible, the means for accomplishing these shifts are concrete. They include, for example, the conduct of medical procedures such as ova collection and DNA collection as wholly commercial exchanges. Aronowitz's hope for a polity capable of challenging the truth claims and uses of science and technology must be expanded. Citizens also must be able to question the claims and uses of the commercial practices of the science and technology industries. Scientific citizenship must include democratic forms of decision making that are shared, and are based on principles and mechanisms of mutual accountability by the public, the state, and industry. Postmodern analysis has tended to yield either dystopic vision or "crypto-idealism."¹²⁸ What is also needed is vigilance for material consequences.¹²⁹

VI. CONCLUSION

Earlier I stated that race is back. Anti-racist efforts to address health care inequalities have shown, in fact, that racism never left. But as a subject of legitimate biomedical research, race is indeed back. The concern, of course, is that the investigation of race will reproduce a powerful form of biological race. The confluence of biological race

¹²⁸ Joel Kovel, *Dispatches from the Science Wars*, in *SCIENCE WARS*, *supra* note 3, at 200.

¹²⁹ *Id.* at 200 (predicting a more materialist turn in postmodernist critique as it grows under the pressures of the present conjunction.”).

and other genetic essentialisms, the ideological power of the gene, and normalization in-progress of genetic selection already suggests that eugenics is near.

The possibilities of enhancement technology use will, according to some, magnify the risk and the effects of a new eugenic era. Others argue that enhancement technology use is our obligation and our right. Their vision of the future is brighter, and apparently race-less. Carefully tended boundaries maintain that illusion. But those boundaries are malleable. When subject to transhumanism's challenges, the complexities show and ambiguities dangle.

More than thirty years ago, *The Six Million Dollar Man* gave us a model transhuman. He was not a loner, an underdog, or an anti-hero. He was a quintessentially 1970s era modernist hero. The backstory placed him squarely within the mythology of the intrepid explorer. He was a former astronaut, a test pilot nearly killed in a crash. After the government invested \$6 million dollars to replace his damaged parts with experimental bionic ones, he acquired superpowers. He became faster, stronger, and could see further. As an agent for the Office of Scientific Investigation, he fought injustice on a weekly basis. In 2005, the predictive power of this show derives not from the tagline – “we can make him better . . . faster . . . stronger.” It comes from the title, which defined him first and foremost in terms of his price tag.

Biopower's silent partner is capital exchange. Whatever mechanisms we use to challenge the boundaries must not only expose the interactions between science and culture, but also those between science and industry. Discursive analysis made relevant by political organizing is one possible starting point. In a complex world, there must be many pressure points. Our efforts must be persistent, adaptive, and trained on material effects as well as normative shifts, even after the code comes tumbling down.

